

# High Temperature Electrical Insulation Materials for Space Applications, Phase I

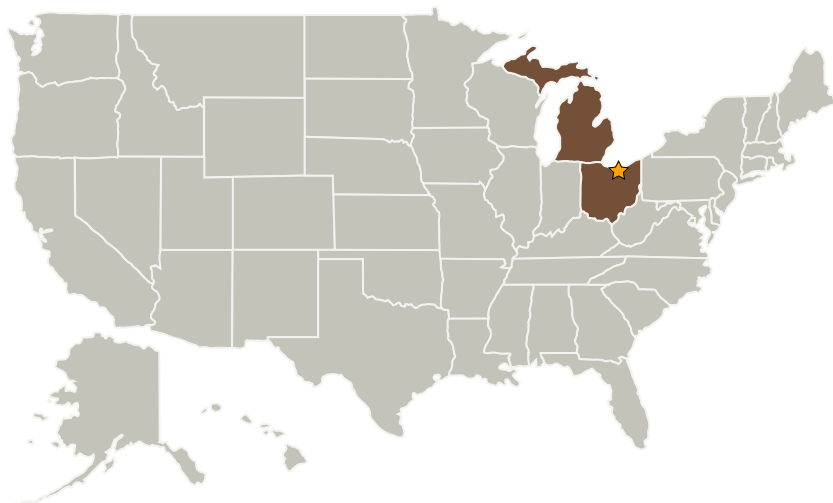
Completed Technology Project (2005 - 2005)



## Project Introduction

NASA's future space science missions cannot be realized without the state of the art high temperature insulation materials of which higher working temperature, high reliability, and low cost are highly desired. T/J Technologies proposes to develop a high temperature, durable, readily processable electrical insulation materials. The key element of our approach is the development and demonstration, in a breadboard configuration, the feasibility of a new high temperature polymeric composite material based on organic-inorganic nanocomposites with tailored structure and composition that will dramatically increase the Glass Transition Temperature and working temperature of the host polymer, polyimides. Future work of this proposed research, during phase II, will be mainly focused on developing all the associated technologies. The development of high working temperature, durable, radiation resistant electrical insulation materials is important for on-board propulsion and power systems for manned and unmanned deep space missions within NASA as well as electrical and microelectronic industries for applications such as capacitors, electric motors, circuit-printing films, semiconductor coating, etc.

## Primary U.S. Work Locations and Key Partners



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## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

### Lead Center / Facility:

Glenn Research Center (GRC)

### Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★ Glenn Research Center(GRC)	Lead Organization	NASA Center	Cleveland, Ohio
T/J Technologies, Inc.	Supporting Organization	Industry	Ann Arbor, Michigan

## Primary U.S. Work Locations

Michigan	Ohio
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## Project Management

**Program Director:**

Jason L Kessler

**Program Manager:**

Carlos Torrez

**Principal Investigator:**

Junqing Ma

## Technology Areas

**Primary:**

- TX12 Materials, Structures, Mechanical Systems, and Manufacturing
  - └ TX12.1 Materials
    - └ TX12.1.6 Materials for Electrical Power Generation, Energy Storage, Power Distribution and Electrical Machines